



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/523,990	03/13/2000	Mou-Shiung Lin	MEG99-005	6138

7590 03/18/2002

George O Saile
Stephen B Ackerman
20 McIntosh Drive
Poughkeepsie, NY 12603

EXAMINER

WALSH, DANIEL I

ART UNIT

PAPER NUMBER

2876

DATE MAILED: 03/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/523,990

Applicant(s)

LIN ET AL.

Examiner

Daniel I Walsh

Art Unit

2876

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 March 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Receipt is acknowledged of Power of Attorney and Information Disclosure Statement received on 20 May 2000.

Claim Objections

2. Claims 3, 6, 11, 12, 16, 19, 24, and 25 are objected to because of the following informalities:

Re claim 3 and 18 line 2: Replace "the silicon" with -- silicon --.

Re claims 6 and 16 line 2: Replace "the device" with -- the chip --.

Re claims 11 and 24 line 3: Replace "the particular" with -- the particular material layer color --, and replace "the identification" with -- identification --.

Re claims 12 and 25 line 6: Replace "the particular" with -- the material --.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 11 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Rostoker (US 5,644,102).

Rostoker teaches a method of marking a chip forming a non-black, colored material layer over at least an exterior surface of the chip wherein the color identifies the chip, through FIG.'s 3A-4B and "A technique is described for providing body coloration and colored indicia for indicating one or more characteristics of an integrated circuit device. Package body coloration is one source of information about device characteristics. Other indications relate to colored indicia. The colored indicia are relatively large and easily viewable from distances too great for printed text on the package body to be read comfortably (see FIG. 3A (6, 320a, 320b, 340) and FIG. 6A). The indicia is (are) colored (FIG. 2A 234a and 236a) other than black or white. Among the visible indicia characteristics which can be used to convey information are: indicia color (or colors on multi-colored indicia), shape, size, orientation, and/or location. Among the various integrated circuit device characteristics which can be conveyed by the indicia characteristics are: device function, device speed, level of testing, degree of rad-hardness, location of reference pin, side, corner or surface, location and function of groups of pins carrying related signals, etc. In order to facilitate assembly, colored indicia matching those on the integrated circuit devices can be printed on a printed circuit board substrate at locations and in orientations on the printed circuit corresponding to the correct assembled positions of the integrated circuit devices (FIG. 6A, 632b and 620b). Colored areas can also be incorporated into semiconductor packages to control (alter, modify) the thermal characteristics of the package, particularly in order that thermal stresses on a die operating within the package can be reduced and equalized" (abstract). This is interpreted to include a non-black colored material layer over a surface of the chip to identify the chip.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shamir (US 5,118,369) in view of Rostoker (US 6,44,102), Samonides (US 5,346,738) and Hess, Jr. et al. (US 5,279,690).

Shamir teaches a method for marking a chip by forming marking indicia on a marking location upon an exterior surface of the chip for identification of the chip through FIG. 8 and

“the microlabels 122 may be utilized in any application in which product identification requires exceedingly small labels. Moreover, microlabels bearing other indicia such as letter or numerals, either with or without bar codes, offers IC manufacturers and others a unique microlabelling capability (see FIG 8, label 122 and FIG. 9 labels 128 and 130” (abstract). Though Shamir

doesn't teach that the labels are on chips, it would have been obvious to an artisan of ordinary skill in the art to include such labels on chips, since Shamir is teaching microlables for small IC applications, such as circuits on wafers, and it would have been obvious to extend this to chips or other similar IC devices.

Shamir fails to teach that the indicia is internal.

Further, Rostoker teaches that indicia on marking locations on an exterior surface of the chip for identification exist through FIG's 2 and 3A-3B.

Rostoker fails to teach that the indicia is internal.

Samonides teaches that the indicia is internal through "An identification label for permanently marking a metal or other etchable surface such as an automobile part with an identifying indicia is disclosed. The label has a protective cover sheet 14, a pressure sensitive adhesive 34 irremovably affixed to the cover sheet, and a liner with a release coating removably affixed to the adhesive. An identifying indicia 44 comprising an etchant in a visible vehicle such as a printing ink is printed on the adhesive at the interface of the removable liner and the adhesive so that when the liner is removed, the remaining portions of the label may be adhesively attached to the metal surface with the etchant of the identifying indicia in etching contact therewith. The identifying indicia will thus be etched into the surface of the part for a permanent marking of the part" (abstract). Though Samonides doesn't teach that the label is specifically for a chip or IC device, at the time the invention was made, it would have been obvious to an artisan of ordinary skill in the art to use such a technique for chip identification since Samonides teaches that it can be used for marking a metal or other etchable, relatively

small, surface. Further, it is well known that semiconductors and IC components commonly are etched, further obviating such modification to the teachings of Samonides.

Samonides fails to teach forming a non-black optically transmissive material over at least the marking location on the one exterior surface of the chip, that it is transparent or semi-transparent. Further, Samonides fails to teach that the material is used for environmental handling and protection.

Hess, Jr. et al. teaches such a material through FIG. 10 and “the label will have maximum life since the bar code or like indicia is protected by Mylar material” (col 4, lines 27+) and transparent protective material 11. Hess, Jr. et al. teaches the transmissive material is used for environmental protection and handling of the devices through “a label construction provides for labels applied to a surface that have long life even outdoors, or in conditions where there are dirt or chemicals” (abstract) and “According to the present invention a label construction, and method of production of labels, are provided which greatly enhance label life, in a simple manner” (col 1, lines 27+). Further, claim 3 is not given patentable weight, as it’s a use claim.

Re claims 4 and 8, at the time the invention was made, it was well known in the art that conventional bar codes are read by bar code systems directing electromagnetic radiation on the marking indicia (barcode) and processing the received reflected radiation/images, that such reading can take place even when the indicia is behind a transparent layer, such as the case in grocery stores, etc.

Re claim 5, though Shamir fails to teach a non-black optically transmissive colored material covers at least the marking location of the one exterior surface of the chip, Shamir teaches “a color bar encoded microlabel, small enough to be placed on the surface of the die”

(abstract) and “The microlabels, whether color bar or black/white coded, are applied preferably at the wafer probing stage” (abstract). This is interpreted to include color bar codes on chips and other semiconductor devices.

Further, though Hess, Jr. et al. teaches a transparent covering/mylar above, Hess, Jr. et al. is silent to the specifics of the color.

However, at the time the invention was made, it was well known that transparent/semi-transparent mylar could come in a variety of colors. Further, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made, to use a colored mylar. One would have been motivated to do this as a matter of design variation, since the applicant has not disclosed that a colored covering material solves any stated problem or is for any particular purpose, and it appears that the invention would perform equally well with a colored/black and white bar code as taught by Shamir, in combination with the transparent covering of Hess, Jr. et al.

Re claims 6 and 7, since Hess, Jr. et al. teaches a cover over the indicia, and Shamir teaches labeling on IC dies on wafers, this is interpreted to include preventing remarking indicia or identification marks on the chip/silicon for a semiconductor package, especially since silicon is well known as a semiconductor and is commonly found in wafer forms. Further, the etched or microlabels are on the device themselves, thus preventing remarking since they are not easily alterable.

At the time the invention was made, it would have been obvious to an artisan of ordinary skill in the art to combine the teachings of Shamir, Rostoker, Samonides, and Hess, Jr. et al.

One would have been motivated to do this to provide a reliable, and robust way of identifying chips/semiconductor components by adding a cover to preserve the physical indicia and its genuineness, while still being able to read and identify the chip/indicia using conventional methods through the protective material layer.

5. Claims 9, 12, 13-17, 19-22, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rostoker in view of Samonides and Hess, Jr. et al.

Rostoker teaches a semiconductor, integrated circuit chip having surfaces including a planar front surface, a planar back surface and edges of the chip between the planar surfaces with at least one electrical contact site on a surface through FIG 2 and FIG. 6. Rostoker teaches marking indicia 320a, 320b and 632b upon an exterior marking portion of a surface of the chip for identifying the chip through FIGs. 3A-3B, and 6A.

However, Rostoker fails to teach that the indicia is internal, forming a non-black layer covering the exterior surface of the chip at least at the exterior marking portion thereof, the non-black layer being composed of a colored, optically transmissive, transparent material preventing remarking, whereby the indicia are visible through the non-black layer.

Samonides teaches that the indicia is internal through "An identification label for permanently marking a metal or other etchable surface such as an automobile part with an identifying indicia is disclosed. The label has a protective cover sheet 14, a pressure sensitive adhesive 34 ~~irremovably affixed to the cover sheet~~, and a liner with a release coating removably affixed to the adhesive. An identifying indicia 44 comprising an etchant in a visible vehicle such as a printing ink is printed on the adhesive at the interface of the removable liner and the

adhesive so that when the liner is removed, the remaining portions of the label may be adhesively attached to the metal surface with the etchant of the identifying indicia in etching contact therewith. The identifying indicia will thus be etched into the surface of the part for a permanent marking of the part” (abstract). Though Samonides doesn’t teach that the label is specifically for a chip or IC device, at the time the invention was made, it would have been obvious to an artisan of ordinary skill in the art to use such a technique for chip identification since Samonides teaches that it can be used for marking a metal or other etchable, relatively small, surface. Further, it is well known that semiconductors and IC components commonly are etched, further obviating such modification to the teachings of Samonides.

Samonides fails to teach forming a non-black layer covering the exterior surface of the chip at least at the exterior marking portion thereof, the non-black layer being composed, of a colored, optically transmissive, transparent material preventing remarking the indicia on the exterior marking surface of the chip, whereby the indicia are visible through the non-black layer. Samonides also fails to teach that the optically transmissive material is used for environmental protection/handling of the silicon.

Hess, Jr. et al. teaches such a material through FIG. 10 and “the label will have maximum life since the bar code or like indicia is protected by Mylar material” (col 4, lines 27+) and transparent protective material 11. This is interpreted to include a non-black layer covering the exterior surface of the chip at least at the exterior-marking position thereof. Though Hess, Jr. fails to teach the use of the cover on an internal barcode or indicia to identify a chip, it would have been obvious to an artisan of ordinary skill in the art to apply a protective label to the indicia on the chip to cover the marking point of the label, to protect the indicia and prevent it

from being tampered with or damaged, thus preventing remarking of the indicia since it is covered, and also increasing the indicia life and accuracy. Further, since the transparent protective material 11 is transparent, the indicia are visible through the layer. Though the specifics as to the color of the optically transmissive transparent cover are not disclosed, at the time the invention was made, it was well known that transparent/semi-transparent mylar could come in a variety of colors, and to use a colored mylar. One would have been motivated to do this as a matter of design choice, since the applicant has not disclosed that a colored covering material solves any stated problem or is for any particular purpose, and it appears that the invention would perform equally well with conventional transparent mylar. Re claim 19, Hess, Jr. et al. teaches a material for environmental handling/protection through FIG. 10 and “the label will have maximum life since the bar code or like indicia is protected by Mylar material” (col 4, lines 27+) and transparent protective material 11. Hess, Jr. et al. teaches the transmissive material is used for environmental protection and handling of the devices through “a label construction provides for labels applied to a surface that have long life even outdoors, or in conditions where there are dirt or chemicals” (abstract) and “According to the present invention a label construction, and method of production of labels, are provided which greatly enhance label life, in a simple manner” (col 1, lines 27+). Further, claim 3 is not given patentable weight, as it’s a use claim.

Re claim 12, Rostoker teaches the color represents identification of the chip as discussed above in claim 11, and Shamir teaches marking indicia for identification. Therefore, at the time the invention was made, it would have been obvious to have color and indicia as means for identification. One would have been motivated to do this since Rostoker teaches that color is

used to identify characteristics of the chip visible from far away such as pin location, etc., whereas the bar-coded indicia taught by Shamir could identify more in-depth data that would need to be encoded in bar code form. Thus the two different identification techniques allow different levels and amounts of data to be stored about the chip, thus being more convenient and user friendly for a user who needs to use, identify, or determining specific parameters of the chip.

Re claim 17, it has been taught above that the transmissive material is transparent. Further, at the time the invention was made, it would have been obvious to an artisan of ordinary skill in the art that the indicia taught by Rostoker or Samonides inherently prevent remarking since they are labels or etched indicia on the chip/device itself, and prevent remarking since they are not easily alterable.

At the time the invention was made, it would have been obvious to an artisan of ordinary skill in the art to combine the teachings of Rostoker, Samonides, and Hess, Jr. et al.

One would have been motivated to do this to provide a reliable, and robust way of identifying chips/semiconductor components by adding a cover to preserve the physical internal indicia and its genuineness, while still being able to read and identify the chip/indicia using conventional methods (barcode/color identification), through the protective material layer.

6. Claims 10, 18, and 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rostoker as modified by Samonides, and Hess, Jr. et al., and further in view of Shamir, as applied to claim 1.

The teachings of Rostoker as modified by Samonides and Hess, Jr. et al. have been discussed above.

Rostoker as modified by Samonides and Hess, Jr. et al. fails to teach the internal indicia are read through the non-black optically transmissive material in response to images of the internal marking indicia provided by reflections of the electromagnetic radiation directed upon the indicia.

However, at the time the invention was made, it was well known in the art that conventional bar codes are read by directing electromagnetic radiation/illumination means on the marking indicia (barcode) and processing/reading the received reflected radiation/images, and that this reading process can take place through transparent layers, as in the case of grocery stores, etc.

It would have been obvious to an artisan of ordinary skill in the art to combine the teachings of Rostoker as modified by Samonides, and Hess, Jr. et al., and further in view of Shamir, as applied to claim 1.

One would have been motivated to do this to provide a reliable, and robust way of identifying chips/semiconductor components by adding a cover to preserve the physical internal indicia and its genuineness, while still being able to read and identify the chip/indicia using conventional methods, through the protective material layer.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Morgan (US 3,558,899), Hampton (US 4,794,238), Quaintance et al. (US 3,953,625), Palumbo et al. (5,999,759), Milbrett (US 4,833,306), Brewster (US 6,117,264), Kim (US

5,395,137), DeSena (US 6,198,807), Leo et al. (US 6,250,554), Canella (US 6,200,386), Anderson et al. (US 4,318,554) and Suzuki et al. (JP02000095291A).

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Daniel Walsh** whose telephone number is **(703) 305-1001**. The examiner can normally be reached between the hours of 7:30am to 4:00pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Lee can be reached on (703) 305-3503. The fax phone numbers for this Group is (703) 308-7722, (703) 308-7724, or (703) 308-7382.

Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to **[daniel.walsh@uspto.gov]**.

All Internet e-mail communications will be made of record in the application file. PTO employees do not engage in Internet communications where there exists a possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35 U.S.C. 122. This is more clearly set forth in the Interim Internet Usage Policy published in the Official Gazette of the Patent and Trademark on February 25, 1997 at 1195 OG 89.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

Application/Control Number: 09/523,990

Art Unit: 2876

Page 14

D. Walsh



DIW
Patent Examiner
2/26/02



KARL D. FRECH
PRIMARY EXAMINER